

A1 2. (Amended) An organic polymer according to claim 1, wherein the first region comprises a first monomer comprising a substituted or unsubstituted aromatic or heteroaromatic group.

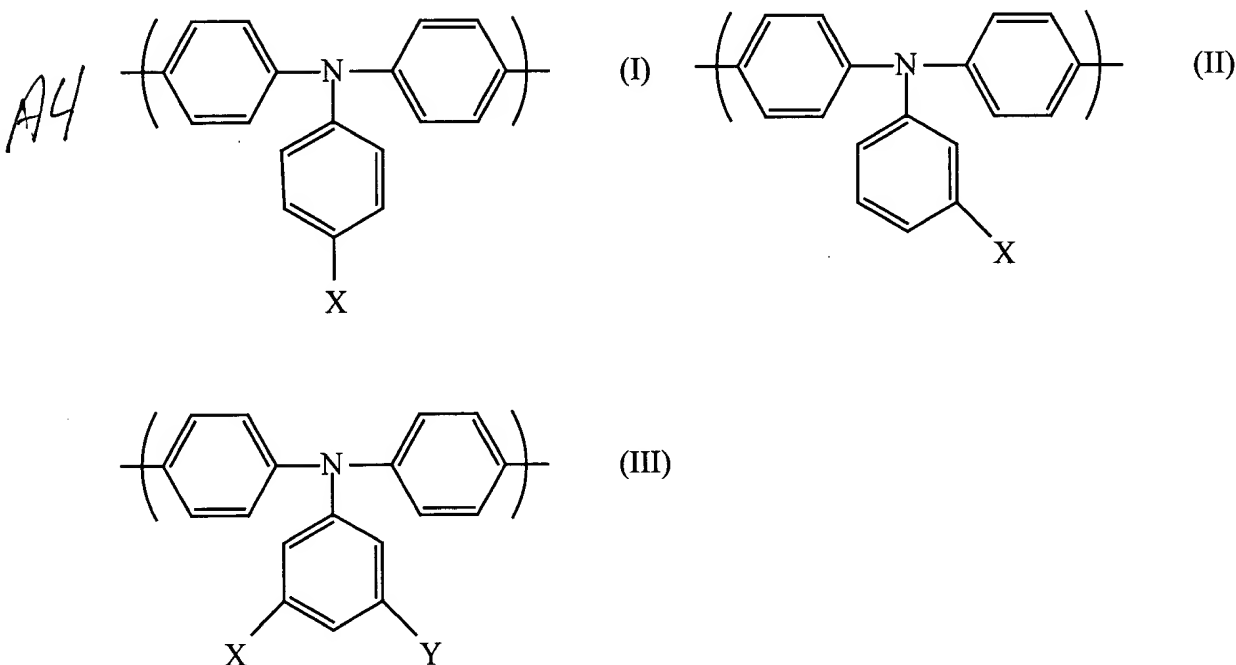
A2 6. (Amended) An organic polymer according to claim 1, wherein the second region comprises a second monomer comprising a substituted or unsubstituted aromatic or heteroaromatic group.

A3 8. (Amended) An organic polymer according to claim 6, wherein at least one Ar comprises a substituted or unsubstituted phenyl group.

9. (Amended) An organic polymer according to claim 7, wherein at least one Ar comprises a substituted or unsubstituted aromatic or heteroaromatic side group that is pendent to the polymer backbone.

A4 12. (Amended) An organic polymer according to claim 9, wherein the side group has a substituent group comprising a substituted or unsubstituted alkyl, perfluoroalkyl, alkylaryl, arylalkyl, heteroaryl, aryl, alkoxy, thioalkyl or cyano group.

13. (Amended) An organic polymer according to claim 7, wherein the triarylamine unit comprises a group having a formula as shown in any one of Formulas I, II, or III:



where X and Y are the same or different and are substituent groups.

A5 15. (Amended) An organic polymer according to claim 13, wherein one or more of X, Y, A, B, C and D is independently selected from the group consisting of hydrogen, alkyl, aryl, perfluoroalkyl, thioalkyl, cyano, alkoxy, heteroaryl, alkylaryl, and arylalkyl groups.

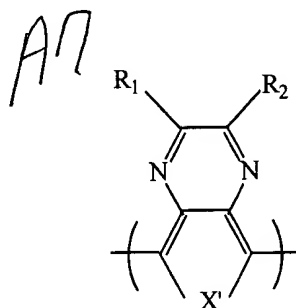
17. (Amended) An organic polymer according to claim 15, wherein X and Y or A, B, C and D are the same.

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AL 18. (Amended) An organic polymer according to claim 1, wherein the third region comprises a third monomer comprising a substituted or unsubstituted aromatic or heteroaromatic group.

22. (Amended) An organic polymer according to claim 20, wherein Ar₁, or Ar₂ independently comprises a substituted or unsubstituted, fused or unfused benzene, thiophene, furan, quinoxaline, biphenyl or fluorene group.

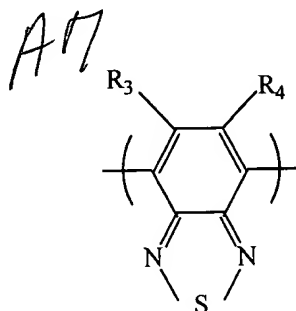
23. (Amended) An organic polymer according to claim 19, wherein the third monomer comprises a group having a formula as shown in Formula VIII:



(VIII)

wherein X' is RC=CR or S and R₁, and R₂ are the same or different and are each a substituent group.

24. (Amended) An organic polymer according to claim 19, wherein the third monomer comprises a group having a formula as shown in Formula XI:



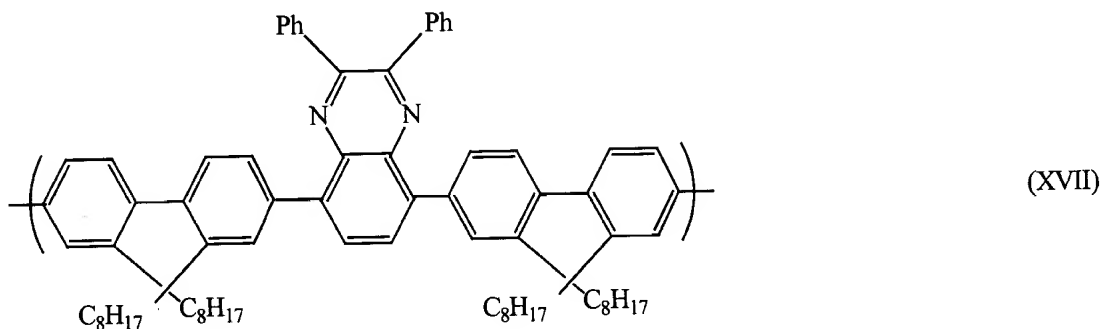
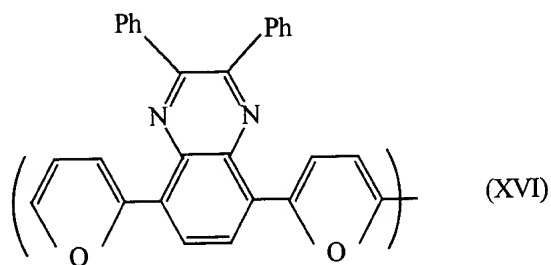
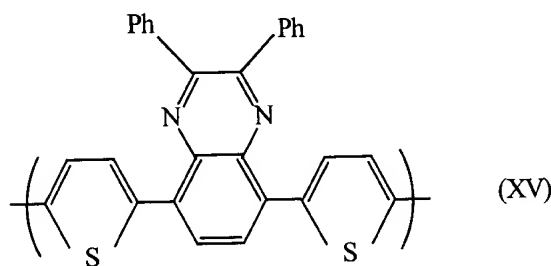
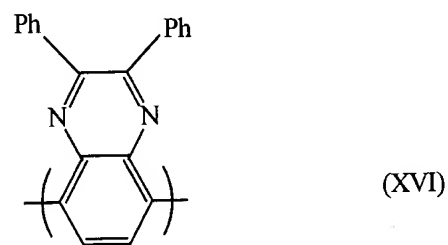
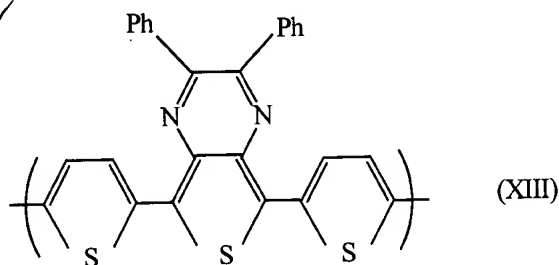
(XI)

wherein R₃ and R₄ are the same or different and are each independently a substituent group.

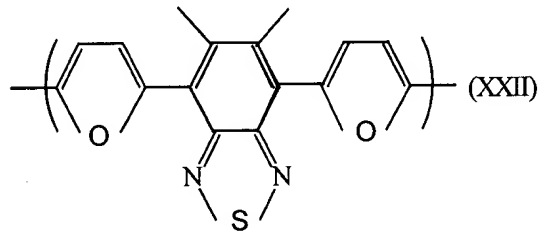
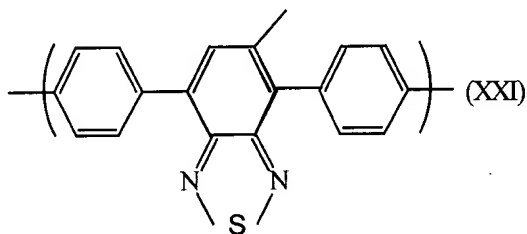
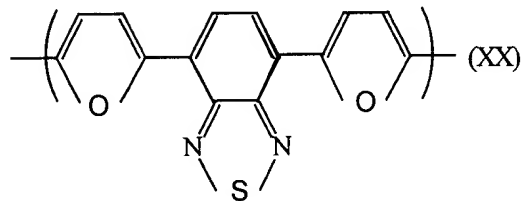
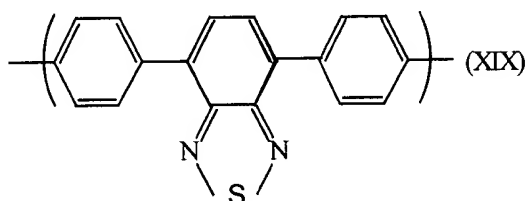
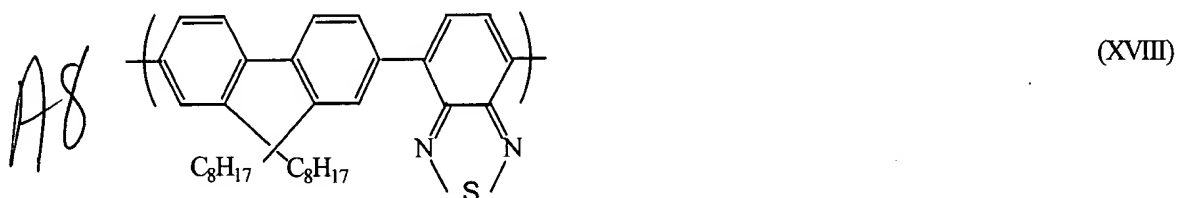
25. (Amended) An organic polymer according to claim 23, wherein one or more of R₁, R₂, R₃ and R₄ is each independently selected from hydrogen, alkyl, aryl, perfluoroalkyl, thioalkyl, cyano, alkoxy, heteroaryl, alkylaryl, arylalkyl, pyridine or furan.

27. (Amended) An organic polymer according to claim 23, wherein the third monomer comprises a group having a formula as shown in any one of Formulas XIII to XVII:

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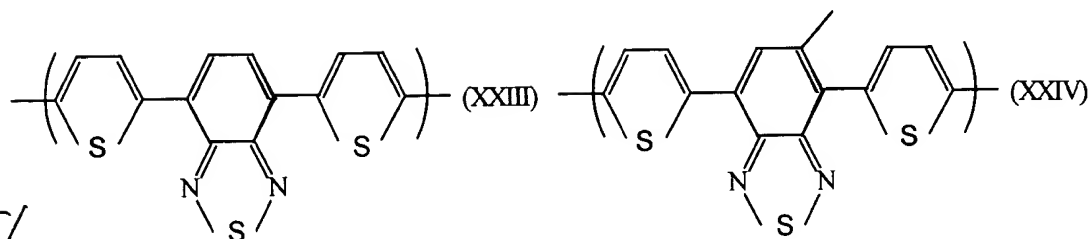


28. (Amended) An organic polymer according to claim 23, wherein the third monomer comprises a group having a formula as shown in any one of Formulas XVIII to XXVI:

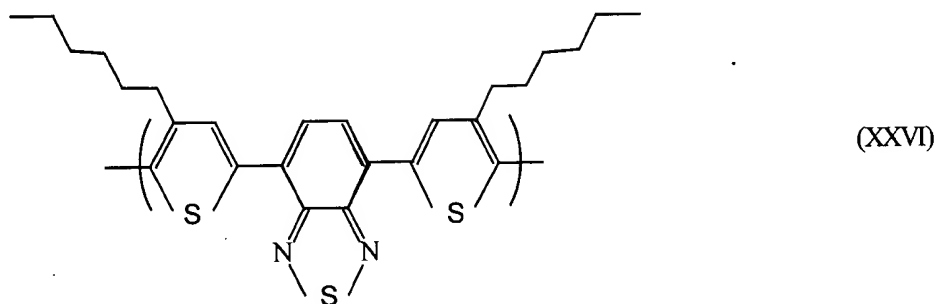
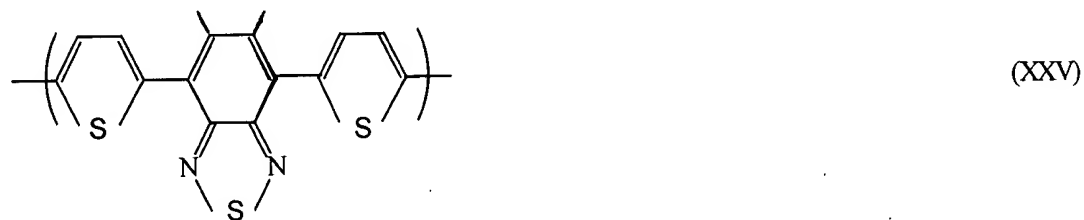


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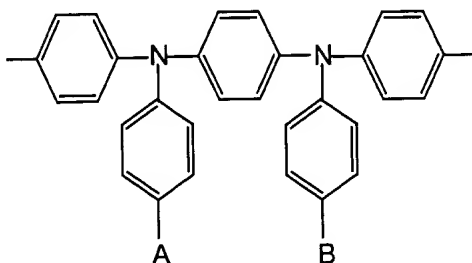


A9 33. (Amended) An organic polymer according to claim 30, wherein at least one Ar comprises a substituted or unsubstituted aromatic or heteroaromatic side group that is pendent to the polymer backbone.

A10 36. (Amended) An organic polymer according to claim 33, wherein the side group has a substituent group comprising hydrogen or a substituted or unsubstituted alkyl, perfluoroalkyl, alkylaryl, arylalkyl, heteroaryl, aryl, alkoxy, thioalkyl or cyano group.

37. (Amended) An organic polymer according to claim 35, wherein the triarylamine unit comprises a group having a formula as shown in Formula IV

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(IV)

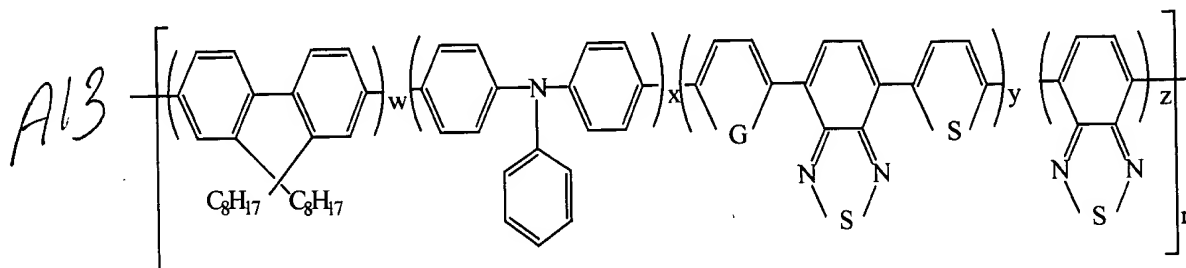
wherein A and B are the same or different and are substituent groups.

39. (Amended) An organic polymer according to claim 1, wherein the first region additionally comprises a fourth monomer comprising a further substituted or unsubstituted aromatic or heteroaromatic group.

41. (Amended) An organic polymer according to claim 6, wherein the second region additionally comprises a fifth monomer comprising a further second monomer as defined in any one of claims 6 to 17, which is different from the second monomer.

42. (Amended) An organic polymer according to claim 1 and comprising at least three regions.

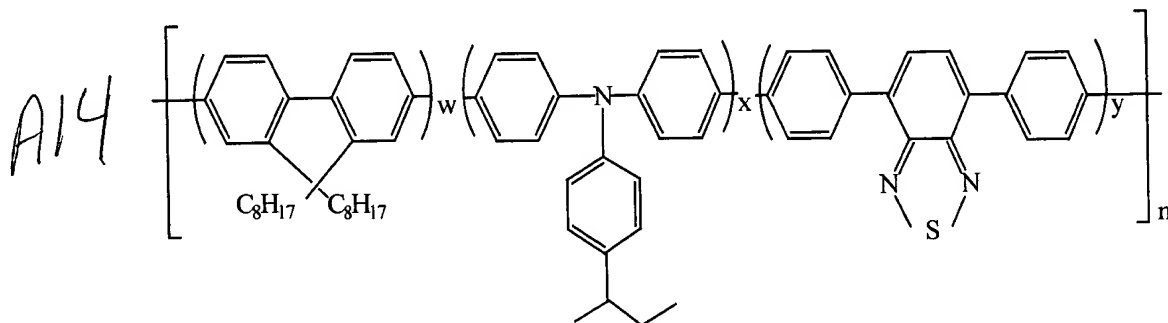
44. (Amended) An organic polymer according to claim 42 having a formula as shown in Formula XXVIII:



XXVIII

wherein $w + x + y + z = 1$, $w \geq 0.5$, $0 \leq x + y + z \leq 0.5$ and $n \geq z$.

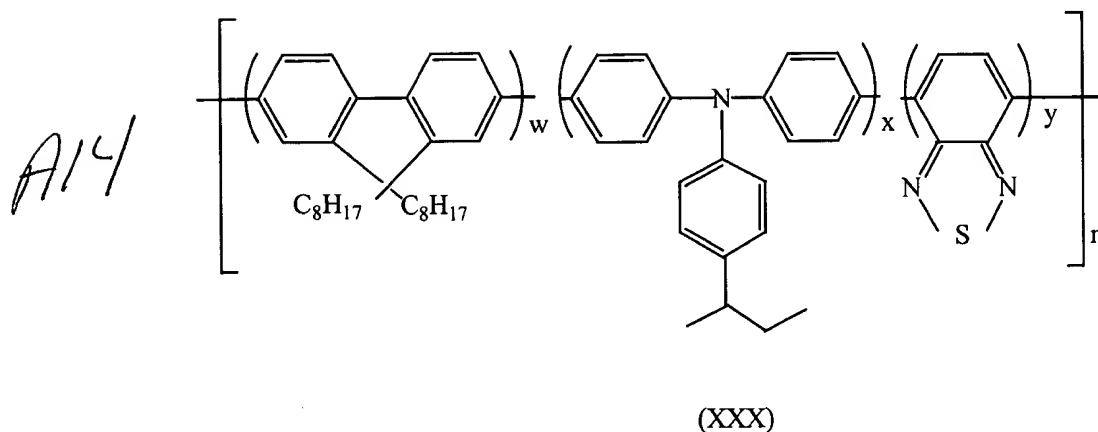
46. (Amended) An organic polymer according to claim 42, having a formula as shown in Formula XXIX:



(XXIX)

wherein $w + x + y = 1$, $w \geq 0.5$, $0 \leq x + y \leq 0.5$ and $n \geq 2$.

47. (Amended) An organic polymer according to claim 42, having a formula as shown in Formula XXX:



wherein $w + x + y = 1$, $w \geq 0.5$, $0 \leq x + y \leq 0.5$ and $n \geq 2$.

50. (Amended) An organic polymer according to claim 1, comprising:

- A15 (i) a first region for transporting negative charge carriers and having a first bandgap defined by a first LUMO level and a first HOMO level; and
- (ii) a second region for transporting positive charge carriers and having a second bandgap defined by a second LUMO level and a second HOMO level; and
- wherein each region comprises one or more monomers and the quantity and arrangement of the monomers within the organic polymer is selected so that the first and second bandgaps are distinct from one another in the polymer.

54. (Amended) An organic polymer according to claim 50, which is blended with a light emissive material.

A16

55. (Amended) An organic polymer according to claim 1, comprising:
A16 (i) a first region for transporting negative charge carriers and having a first bandgap defined by a first LUMO level and a first HOMO level; and
(ii) a third region for accepting and combining positive and negative charge carriers to generate light and having a third bandgap defined by a third LUMO level and a third HOMO level,
wherein each region comprises one or more monomers and the quantity and arrangement of the monomers in the organic polymer is selected so that the first and third bandgaps are distinct from one another in the polymer.

A17 57. (Amended) An organic polymer according to claim 55, which is blended with a hole transporting material.

A18 59. (Amended) An organic polymer according to claim 1, comprising:
(i) a second region for transporting positive charge carriers and having a second bandgap defined by a second LUMO level and a second HOMO level; and
(ii) a third region for accepting and combining positive and negative charge carriers to generate light and having a third bandgap defined by a third LUMO level and a third HOMO level,
wherein each region comprises one or more monomers and the quantity and arrangement of the monomers in the organic polymer is selected so that the second and third bandgaps are distinct from one another in the polymer.

A19 61. (Amended) An organic polymer according to claim 59 which is blended with an electron transporting material.

A20 63. (Amended) An optical device including a polymer according to claim 1.